WHAT LEADS TO ONLINE REVIEW HELPFULNESS ON E-COMMERCE PLATFORM? EXAMINING THE MODERATING EFFECT OF HIGH AND LOW PRICES

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Abstract - Using signaling theory, this study unpacked the mechanisms through which online review information quality and reviewer information credibility influence online review helpfulness, in e-commerce context. Conducting a survey with users in Danang having read online reviews on Shopee.vn, 244 valid responses were used to evaluate the research model via PLS-SEM software. The study found that the information quality of online reviews strongly influences the helpfulness of online reviews compared to the information credibility of previous reviewers. Additionally, priced goods have a moderating effect on the relationship between online information credibility and online reviews helpfulness; and that relationship will be significant in high-priced products. This study makes a theoretical contribution to online reviews by elucidating the mechanisms of impact of review/reviewer information on reviews helpfulness and the moderating effect of product prices.

Key words - Review information quality; Reviewer information credibility; Online review helpfulness; low-high price.

1. Introduction

With the fast pace of modern life, online shopping is on the rise among users, especially for the young because of its convenience and time-saving. In fact, e-commerce is considered as an efficient means of online shopping compared to traditional methods. In recent years, Vietnam’s e-commerce has grown tremendously with an increase of 18%, and market size of 11.8 billion USD [1]. It is anticipated that there will be 49 million Vietnamese users using e-commerce for online shopping (the national e-commerce development master plan for the period 2021–2025). Along with that, however, users are more likely to be hesitant to opt for shopping online by relying on online reviews of consumers who have bought the products/services on e-commerce websites. Around 60% of users read online reviews about products/services at least one per week, with 93% believing that these online reviews can help them make a better purchase decision.

Online reviews have been much more prominent as they can allow users to describe, relive, and share their opinions as well as experiences toward a product/service with others. In other words, online reviews are also regarded as an overall view of all aspects relating to products/services [2], which in turn leads to consumers’ purchase decisions. On the other hand, this means there are countless online reviews on e-commerce platforms, which requires consumers’ efforts and time to filter them as well as possible. Online reviews helpfulness is always recognized as a paramount factor prior to making a purchase. Therefore, exploring the antecedents having impact on online reviews helpfulness is the principal issue to combat. To the best of our knowledge, prior studies have provided insights into the mechanisms predicting the helpfulness of online reviews. Recent research has shown that some features from review texts including length [3], readability [4, 5], sentiment [6], accuracy [7, 8],... can be key determinants of its helpfulness. Some studies have noted reviewer-related factors such as influential reviewer [9], highly rated reviewers [10, 11] having a significant effect on consumers’ assessment towards those reviews. Generally, previous studies have focused on exploring the external factors of online reviews, not considering how the information quality of both reviews and reviewers affects their usefulness. Therefore, more investigations on this era are required. This study aims to bridge the gap in the literature by discovering the relationship between review information quality, reviewer information credibility and review helpfulness.

Furthermore, there is a lack of studies examining the mechanisms affecting the helpfulness of consumer reviews on e-commerce websites in Vietnam, in particular Shopee. As updated by iPrice insights [12], Shopee Vietnam continues to lead the top e-commerce business in terms of website traffic, with its figure of averaging 84 million visits/month for the first quarter of 2022. That result represents how frequent consumer behavior is on Shopee.vn, including searching for and accessing product reviews and other behaviors. Consequently, it is urgent to determine the influence of the characteristics of online reviews on the perception of helpfulness of reviews on the Shopee. As a result, this study is also one of the pioneers to explore this topic in the context of Vietnam and will have pertinent implications for Shopee e-commerce.

On top of that, price is another stimulus that most consumers consider when making an online purchase [13, 14]. In the online shopping context, price profoundly affects consumers’ satisfaction variables [15]. There is, nevertheless, currently little research on studying the impact of price on online reviews. In this study, we opt for low-high price as a moderate variable on the link between the characteristics of reviews and review helpfulness.

2. Literature review

2.1. Signaling theory

This study draws on signaling theory to understand consumers’ perception of online reviews helpfulness in emerging markets, in particular in e-commerce sites. As
[16] proposed a signaling theory as an efficient means to help both parties’ information imbalance. These days, signaling theory has been much more prominent in several fields of marketing, management, and economics to describe how information asymmetry affects several situations ([17, 18]). With regard to the relationship between customers and e-retailers, signaling theory has been used to depict the kinds of signals e-retailers provide to clients in order to lessen information asymmetry and help them make more accurate quality assessments when there is little information available about products. In the field of online reviews, signaling theory acts as a paramount role in describing why various Internet reviews are included and why different signals have varied effects. Extending the scope of prior research in the field of online review helpfulness, we build upon a signaling theory as a theoretical lens. More specifically, we identify the key aspects of signaling theory affecting the helpfulness of online reviews – signalers (reviewer) and signals (review). Information quality was defined as the persuasive power of the message [19]. Online review can be created by almost every user after purchasing products on the e-commerce sites; therefore, the quality of online review information is of paramount importance for other users. Furthermore, according to [20], information credibility is the first element in a person’s decision-making process, and it is defined as coming from a reliable source.

2.2. Online review helpfulness

In e-commerce such as Shopee, consumers can review the helpfulness of reviews of other prior purchasers. Of the many definitions of online review helpfulness, we adopt the definition proposed by Mudambi and Schuff [16], who stated that a review helpfulness is a “peer generated product evaluation that aids the consumers’ purchase decision process” and it has a positive effect on product sales by reducing consumer information overload [22]. In this study, the helpfulness of online reviews represents the degree to which online reviews can help consumers reduce their uncertainty about online shopping [23, 24].

![Figure 1. Proposed research model](image)

Recent studies have examined the factors affecting online review helpfulness including review contents (rating, consistency, accuracy [7, 8], etc.), reviewer characteristics (reviewer experience [25], reviewer impact, influence [9]). This study differs from other previous studies by emphasizing on the review and reviewers’ information. More specifically, we developed several hypotheses to include the mechanisms contributing to the online reviews helpfulness for experience goods including review information quality and reviewer information credibility. Moreover, the outstanding point of this study lies in the approach we opt for perceived price (low-priced vs high-priced goods) as a moderate variable, as presented in Figure 1.

3. Hypothesis development

3.1. Online review information quality and Online review helpfulness

Information quality refers to the persuasive power of the message [19], [21]. It refers to the consistency, clarity, and accuracy of online review, which fosters consumers’ decision [7, 8]. According to Olshavsky [26], consumers are more likely to approach product/services eagerly if information meets their needs. Hence, information quality is regarded as a paramount element to discover in different contexts. Drawing on the IAM model, information quality from eWOM can be one of the determinants of consumers’ purchase decisions [27]. Potential consumers are prone to trust a company/product when they are given reliable, and timely information. In this paper, online review information quality will be perceived as high, clear and understandable.

In the online review era, the extant literature suggests the impact that review information quality may have on the helpfulness of reviews. The attributes of review contents are examined and have a positive impact on review helpfulness [3, 6, 7, 8], which proves that the more informative the review’s quality, the more helpful review that users perceive. A review text with assessments that is easier to comprehend will be valued more highly than one with more complex language and information on product attributes. Moreover, some previous research stated that purchase intention is affected positively by the quality of online reviews [28, 29]. Againly, in the study [8], the greater the message’s accuracy, the more valuable the information is. As a result, review information quality is crucial when customers deliberate over online review content, especially when it comes to helpfulness. An informative online review can help to lessen the information gap between the review’s reader and the product’s real user (i.e., the potential users or receiver of the signal). In this study, we want to prove the aforementioned relationship, so we propose a hypothesis:

H1: Online review helpfulness is affected positively by online review information quality.

3.2. Online reviewer information credibility and Online review helpfulness

In addition to the excellent review information, information from credible sources is regarded as an efficient means of promoting knowledge transfer and enhancing individual decision-making [27]. Unlike information quality, it mainly focuses on the accuracy, completeness, and timeliness in providing information which are fundamental to information quality [30], reviewer information credibility emphasizes on the reliable sources of reviewer [27]. Specifically, the
reviewers’ expertise acts as an important way for recipients, especially when they look for information that is supposed to aid them in making decisions [31]. Attitudes are mostly affected by the source’s competence when the message is conveyed to consumers and its personal significance. Sources with more in-depth product expertise are anticipated to have more sway [32]. Customers look for information written by those who are perceived more knowledgeable [33]. This paper, online reviewer information credibility indicates the prior reviewer credibility to post, written the review about products or services on e-commerce sites.

Moreover, prior studies have also demonstrated the link between consumer purchase intention and information credibility [33, 35]. Based on the IAM model (information adoption model) - explaining the characteristics of eWOM information, while the related components of TRA (the theory of reasoned action) represents the behaviour of consumers towards eWOM information, the relationship between the credibility of eWOM information and its usefulness [36].

For the online review context, the expertise of the reviewer is displayed as one of the most important factors on the credibility of online reviews [37]. If reviewers of online reviews are perceived as credible, those reviews are also prone to be credible by consumers. In line with this argumentation, we will explore the link between review helpfulness and reviewer information credibility, suggesting the following hypothesis:

**H2:** Online review helpfulness is positively affected by online reviewer information credibility.

### 3.3. The moderation of low or high-priced goods

Price is considered as an important stimulus to attract users and help them take into account upon making online purchases [38]. In the study of Askalidis and Edward [39], they discovered that expensive goods have a larger value for reviews than cheaper goods. Compared to 190% for low priced items, high priced ones can see a conversion rate increase of up to 380% as they gain reviews. We conclude that the presence of reviews gives customers useful signals, increasing their inclination to buy.

In general, individuals value expensive goods more than cheap ones [40]. As a result, people carefully study reviews of high-priced goods to help them make better choices. Online consumer reviews are mostly used by customers looking to compare alternatives before making a high-priced purchase. However, when customers wish to purchase inexpensive things, they are more likely to employ relatively basic or constrained search and evaluation strategies [41]. Furthermore, the prior empirical study found that consumers are likely to use central cues (review attributes including review consistency) to judge how helpful a review is upon buying high-priced items. By contrast, when purchasing low-priced goods, they rely on peripheral cues (review rating, reviewer reputation and so forth) [42].

As a result, we hypothesize the moderating effects in the relationship between the mechanisms of online review and its helpfulness as follows:

**H3:** The relationship between online review information quality and online review helpfulness is moderated by priced goods.

**H4:** The relationship between online reviewer information credibility and online review helpfulness is moderated by priced goods.

### 4. Data and method

We employed a non-probability sampling method in which respondents in Danang city who have seen online reviews on Shopee.vn regardless of occupations, gender. This sample is so approachable and has better responses. We also use the quota method to moderate the price (50% respondents choose high-priced goods, and 50% for the rest). Regarding the separation between high or low goods, we conducted a qualitative survey with 20 people to have understandings, thus they said goods costing over 300,000 VND is high and in contrast is low. Furthermore, the typical sample size should be from 100 to 400 respondents [43]. We have three variables including review information quality [44], reviewer information credibility [45,46], and review helpfulness [47] (See Table 1). All items were measured by a five-point Likert scale, with 1 indicating strongly disagree and 5 indicating strongly agree.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Code</th>
<th>Items</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Review Information Quality</td>
<td>ORIQ1</td>
<td>I think online review information is understandable</td>
<td>[44]</td>
</tr>
<tr>
<td></td>
<td>ORIQ2</td>
<td>I think online review information is clear.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ORIQ3</td>
<td>Generally, I think the quality of online review information is high.</td>
<td></td>
</tr>
<tr>
<td>Online Review Information Credibility</td>
<td>ORIC1</td>
<td>I think online prior reviewer credibility about products/services is convincing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ORIC2</td>
<td>I think online prior reviewer credibility about products/services is strong.</td>
<td>[45, 46]</td>
</tr>
<tr>
<td></td>
<td>ORIC3</td>
<td>I think online prior reviewer information about products/services is credible.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ORIC4</td>
<td>I think online prior reviewer information about products/services is accurate.</td>
<td></td>
</tr>
<tr>
<td>Online Review Helpfulness</td>
<td>ORH1</td>
<td>Online reviews are informative.</td>
<td>[47]</td>
</tr>
<tr>
<td></td>
<td>ORH2</td>
<td>Online reviews are useful to me.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ORH3</td>
<td>Online reviews are helpful to me.</td>
<td></td>
</tr>
</tbody>
</table>

Out of 269 questionnaires collected, we have 244 valid responses to test further via Excel, SPSS, and PLS-SEM software. Thanks to SPSS, we briefly describe the variables used through several criteria such as Mean, Std. Dev, Min, and Max (as presented in Table 2).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIQ</td>
<td>3.628</td>
<td>.567</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>ORIC</td>
<td>3.382</td>
<td>.582</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>ORH</td>
<td>3.169</td>
<td>.564</td>
<td>2.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>
5. Results and discussion

We analyzed the validity and reliability of items via convergent validity, discriminant validity and construct reliability. Regarding construct reliability, the findings found that all constructs achieved Cronbach’s alpha and composite reliability (CR) are greater than 0.7 [38]. Specifically, CR ranged from 0.846 to 0.916 and CA was at least 0.728. In terms of convergent validity, averaged variance extracted (AVE) for each construct was from 0.608 to 0.785, which exceeded 0.5 (Fornell and Larcker, 1981). All variables have factor loadings that range from 0.751 to 0.934, except for RIC1 being 0.699, so we deleted item RIC1 (as shown in Table 4). Finally, discriminant validity was acceptable when the diagonal elements presented in the square root of AVE are larger than off-diagonal elements. The pairwise correlation matrix of the variables is displayed in Table 3. The worry regarding multicollinearity is allayed by the fact that no two variables have any correlations greater than 0.8.

Table 3. Heterotrait-Monotrait Ratio (HTMT)

<table>
<thead>
<tr>
<th>Construct</th>
<th>ORH</th>
<th>ORIC</th>
<th>ORIQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR:</td>
<td>0.394</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORH:</td>
<td>0.564</td>
<td>0.746</td>
<td></td>
</tr>
<tr>
<td>ORIC:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Psychometric properties of the measurement models

<table>
<thead>
<tr>
<th>Reflective measurement model</th>
<th>Reliability</th>
<th>Convergent validity</th>
<th>Discriminant validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct</td>
<td>CA</td>
<td>CR</td>
<td></td>
</tr>
<tr>
<td>ORH</td>
<td>0.728</td>
<td>0.735</td>
<td>0.846</td>
</tr>
<tr>
<td>ORIC</td>
<td>0.789</td>
<td>0.824</td>
<td>0.861</td>
</tr>
<tr>
<td>ORIQ</td>
<td>0.860</td>
<td>0.858</td>
<td>0.916</td>
</tr>
</tbody>
</table>

Note:  
- All items loadings are significant at the significance level of 0.1% (p < 0.001)  
- CA: Cronbach’s Alpha, CR: Composite reliability, AVE: Average variance extracted.  
- ORIQ: Online review information quality, ORIC: Online reviewer information credibility, ORH: Online review helpfulness.

After analyzing the validity and reliability of the scales, we run Bootstrapping procedure with 5000 samples in PLS-SEM. Two direct relationships were found statistically significant, with p<0.05, and t-statistics >= 1.96, hence H1, H2 was supported. Also, the results showed that R-square for review helpfulness was 0.215, greater than 0.2, which is considered high effect [48]. They are presented in Table 5.

Table 5. Summary of hypothesis testing results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Original sample</th>
<th>T statistics</th>
<th>P values</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: ORIQ → ORH</td>
<td>0.371**</td>
<td>5.856</td>
<td>0.000</td>
<td>YES</td>
</tr>
<tr>
<td>H2: ORIC → ORH</td>
<td>0.141*</td>
<td>2.139</td>
<td>0.032</td>
<td>YES</td>
</tr>
</tbody>
</table>

* , **: p< 5%, 1%. T-stat in parentheses.

Furthermore, to test the moderator of the priced goods, we use multi-group analysis to see whether differences would change between high and low-priced goods or not. Price-goods were separated by 2 categories: high-priced goods (126 cases) and low-priced goods (114 cases). The results found that the relationship between reviewer information credibility and review helpfulness moderated by priced goods was statistically significant, with β = 0.277, p-value = 0.031, t-statistics = 2.181. By contrast, the link between review information quality and review helpfulness was rejected via the moderation of the priced-good. Thus, H3 was rejected, but H4 was supported (as presented in Table 6).

Table 6. Results of PLS-MGA

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path coefficient (High-priced)</th>
<th>T statistics (High-priced)</th>
<th>P-value original</th>
<th>P-value new</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3: ORIQ → ORH</td>
<td>-0.211</td>
<td>1.696</td>
<td>0.955</td>
<td>0.089</td>
<td>NO</td>
</tr>
<tr>
<td>H4: ORIC → ORH</td>
<td>0.277</td>
<td>2.181</td>
<td>0.016</td>
<td>0.031*</td>
<td>YES</td>
</tr>
</tbody>
</table>

* , **: p< 5%, 1%.  

Also, the findings showed the differences in those proposed relationships between high-priced and low-priced goods. More specifically, the relationship between reviewer information credibility and review helpfulness was significant in the high-priced goods, whilst the opposite was true for the low-priced ones. Table 7 presented those above results.

Table 7. Bootstrapping Results in MGA

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path coefficient (Low-priced)</th>
<th>T statistics (Low-priced)</th>
<th>P-value (High-priced)</th>
<th>P-value (Low-priced)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIQ → ORH</td>
<td>0.269</td>
<td>0.480</td>
<td>3.074*</td>
<td>5.407**</td>
</tr>
<tr>
<td>ORIC → ORH</td>
<td>0.280</td>
<td>0.002</td>
<td>3.127*</td>
<td>0.027</td>
</tr>
</tbody>
</table>

* , **: p< 5%, 1%. T-stat in parentheses.

6. Conclusion

The results demonstrate that online review information quality, online reviewer information credibility have positive impacts on online review helpfulness. First, the link between online review information quality and online review helpfulness is found, which is consistent with [4, 5, 7, 8], who found that the characteristics of review including readability, accuracy, and so forth are the primary mechanism leading to review helpfulness. Also, [3, 6] have found that users tend to perceive the helpfulness of online review due to its high quality. Thus, if the high quality of online review information is assured, users would perceive its review helpful. Thus, to enhance the consumers’ experience via a useful online review, it is of paramount importance to enhance review information. Second, online review helpfulness is positively affected by online reviewer information credibility. This finding is in support of prior studies [32, 34, 35], who revealed that users’ perception is more likely to be affected by the trustworthiness, expertise, and likeliness of reviewers. In fact, reviewers with some experience and expertise in using products will provide several better reviews, which may contribute to online review helpfulness [33].
More interestingly, this paper has found that low and high prices moderate the relationship between online review information credibility and online review helpfulness. This is inconsistent with prior study [42], who stated that users rely on peripheral cues (review rating, reviewer reputation) when buying inexpensive goods. Moreover, sellers of high quality brands will spend more to persuade consumers to try their wages, thus reviewer information is credible, users would be confident with their making decision [49].

This study makes several theoretical contributions to literature on online review. Firstly, we enrich the body knowledge by clarifying the factors having effects on online review helpfulness. Second, this is one of the few studies to elucidate online review in Vietnam context. Last but not least, we test the moderating effect of pricing on these relationships in the proposed research model.

This paper suggests that sellers should be in control of the information quality of reviews so that they can prevent some cases from too negative reviews about products. Additionally, to increase the online review helpfulness, sellers should opt for product review KQIs to boost the reviewer information credibility. Interestingly, with high-priced goods, users are more likely to make concerns about the credibility of the information of reviewers with high-priced products.

This study, however, has some limitations. First, this study only focuses on surveying those living in Danang city, it is not representative of the total population, therefore, future studies should collect more samples of consumers in many regions and compare the differences among them. Second, this study as well as previous research only emphasize on review and reviewer-related signals, and ignore the attributes of users which can contribute to its helpfulness. Consequently, future studies can elucidate some factors related to users, which will make some valuable theoretical implications in online review context.

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